orchideous root used in medicine; but neither of this nor of the Bariyalbhera seeds (p. 285) from Chhinâchhin in Yumila, a province east of Kumâon, have I any identification to bring forward.

XXXIX.—*Monograph of the genus* Catops.

By Andrew Murray, Edinburgh.

[Concluded from p. 404.]

Exotic Species.

56. *C. suturalis* (mihi).

Affinis *C. sericeo*, sed elongatior, lateribus minus rectis, et thorace forma breviore; elytris longioribus. Long. $1\frac{1}{3}$ lin.

Fig. 49.

Fuscous; head and thorax with fulvous sericeous pubescence; elytra ferruginous-brown, with the anterior half of the sutural margin and the margins of the elytra darker; inflexed margins of elytra and margins of under side of thorax clear ferruginous, remainder of under side pitchy-black; legs ferruginous. Antennæ with base ferruginous, club and apex dark; first joint large and long; second not so long; third and fourth of nearly the same length; fifth shorter than fourth; sixth shorter than seventh; seventh large and broad; eighth very small; three last nearly of the same size. Thorax faintly transversely strigose, posterior angles obtuse. Elytra deeply transversely strigose. Scutellum elongate. Sutural stria shortened, joining the suture at about one-third from the apex. Elytra truncate at the apex; pubescence on elytra darker than on thorax.

This species has a great resemblance to *C. sericeus*, but differs from it in the following particulars. In general outline it is scarcely broader in front than behind, while *sericeus* is usually markedly so. The thorax begins to round-in towards the head almost immediately from the base forward, while in *sericeus* it does not begin to turn inwards till about the middle of the thorax. Scutellum more elongate than in *sericeus*. The length of the elytra is $2\frac{1}{2}$ times that of the thorax, while in *sericeus* it is not so much as twice that length. The elytra also are not so broadly truncate at the apex.

Described from a specimen in M. Chevrolat's collection received under this name from M. Motschoulsky. Locality not mentioned; supposed to be from Mongolia.

57. *C. californicus*, Leconte.

Catops californicus, Lec. Synopsis of Silphales of N. America, Proc. Acad. Philadelphia, vol. vi. 1853, p. 281.

Oblongus, subovalis, piceus, sericeus, subtilissime punctulatus et transversim strigosus; antennarum basi, pedibus, elytrisque pallidioribus, his stria suturali profunda; thorace antrorsum valde angustato, angulis posticis paulo productis subacutis.
Long. 1 lin.

Fig. 50.

The antennæ are slightly clavate and as long as the head and thorax; the thorax is strongly narrowed in front, truncate at base, and slightly sinuate near the posterior angles, which are subacute; the sides are broadly rounded; the disk is sometimes blackish, and the sides dark rufous. The punctures of the upper surface in this species are very indistinct, and the transverse striæ very fine; the pubescence is sericeous, but not dense; the anterior tarsi of the male are strongly dilated, the intermediate pair simple, the posterior pair longer than the tibiæ.

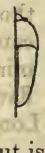
Dr. Leconte mentions that it is abundant at San Jose and San Diego, California. He also observes that one female specimen which he had from San Diego appeared more elongated than the others and much more narrowed posteriorly. He could not, however, find any other difference.

58. *C. consobrinus*, Leconte.

Catops consobrinus, Lec. Syn. Silph. N. Amer. Proc. Acad. Philad. vi. 1853, p. 281.

"Oblongo-ovalis, subelongatus, ater, subsericeus, vix punctulatus, subtiliter transversim strigosus; antennis basi rufo-piceis; elytris stria suturali profunda; thorace antrorsum modice angustato, angulis posticis leviter productis.
"Long. 1 lin.

Fig. 51.



"Georgia. This species resembles the two preceding, but is a little more elongated and more oval; it is entirely black, excepting the base of the antennæ and the tarsi, which are rufo-piceous. The thorax is more than one-half wider than long, moderately narrowed in front, broadly truncate at apex, very slightly rounded on the sides, truncate at base, and faintly sinuate at the posterior angles, which are slightly acute. The punctures are very indistinct. The transverse scratches are as fine as in *C. californicus**."

* Leconte in *loc. cit.*

59. *C. Lecontei*, mihi.

Catops strigosus, Lec. Syn. Silph. N. America, Proc. Acad. Philad. vol. vi. 1853, p. 281.

"Oblongo-ovalis, subelongatus, piceo-rufus, sericeus, distinctius strigosus; thorace latitudine sesqui breviore, antrorsum modice angustato, angulis posticis vix productis, subacutis; elytris stria suturali profunda; antennis magis incrassatis, piceis, basi testaceis.
"Long. 1 lin. Fig. 52.

"One female, South Carolina, Dr. Zimmerman. This species resembles the preceding, but the thorax is less narrowed in front and less rounded on the sides; the transverse lines on the thorax and elytra are more distinct; the punctures are very indistinct; the first four or five joints of the antennæ are testaceous, the rest are piceous; the apex is indistinctly paler*."

The "Synopsis of the Silphales of America north of Mexico," in which this species was described by Dr. Leconte under the name of *strigosus*, was published in February 1853, while M. Kraatz's description of the European species so named by him was published in the 'Stettin Ent. Zeitung' in 1852. By the rule of priority therefore, the name *strigosus* must be retained for Kraatz's species, and another name given to this. It appears to me that it is an appropriate homage to name it after the eminent naturalist who first described it.

60. *C. oblitus*, Leconte.

Catops oblitus, Lec. Syn. Silph. N. Amer. Proc. Acad. Philad. vi. 1853, 282.

"Subellipticus minus convexus, rufo-fuscus, pubescens; thorace punctulato antrorsum subangustato basi truncato, angulis posticis fere obtusis; elytris transversim minus dense strigosis, stria suturali distincta; antennis flavis, art. 4–10 fuscis.
"Long. 1½ lin. Fig. 53.

"Three specimens, Georgia. Easily distinguished by its subelliptical and less convex form. I cannot discover any punctures on the elytra; if they exist they are concealed by the dense pubescence, which is however scarcely sericeous. The male has three joints of the anterior tarsi dilated; the middle tarsi are simple in both sexes†."

The mesosternal keel is less elevated in this and the next than in the other species.

* Leconte in *loc. cit.* † Leconte in *loc. cit.*

61. *C. parasitus*, Leconte.

Catops parasitus, Lec. Syn. Silph. N. Amer. Proc. Acad. Philad. vi. 1853, p. 282.

"Breviter ovatus, piceo-rufus, sericeus; thorace disco obscuriore, brevi, antrorsum valde angustato, angulis posticis non productis; elytris transversim strigosis, stria suturali profunda; antennis basi apiceque flavis. Fig. 54.

"Long. $\frac{3}{4}$ lin.

"New York, in ants' nests, with *Hæterius brunnipennis*, March and April. This species is much broader and more suddenly narrowed posteriorly than the others. The thorax is fully twice as wide as its length, punctulate, not strigose, strongly narrowed in front, broadly rounded on the sides, truncate at base, with the posterior angles simply rectangular and not produced. The elytra are punctulate and distinctly striate transversely. The antennæ are as long as the head and thorax, very slightly incrassated, rufo-piceous, with the first four joints and the apical one yellowish; the seventh joint is more than twice the length of the sixth; the eighth joint is much shorter, but scarcely thinner than the following ones. The anterior tarsi of the male are broadly dilated; the first joint of the middle tarsi is less dilated than in *C. terminans**."

The mesosternal keel is finer and less raised in this and *C. oblitus* than in the other species.

62. *C. ascutellaris*, mihi.

Oblongo-ovatus, fusco-sericeus; antennis vix ad apicem incrassatis, fuscis, basi apiceque ferrugineis; thorace elytrisque leviter transversim strigosis, his stria suturali impressis; *scutello inviso*. Fig. 55.

Long. $\frac{7}{8}$ lin.

Fuscous-brown. The antennæ are scarcely so long as the head and thorax, so slightly clavate as to be almost filiform, fuscous, the basal joints ferruginous, the two apical joints pale; first and second joints long and slender, those following short, gradually though very slightly increasing in breadth up to the seventh; the seventh is rather shorter than the ninth, and of about the same thickness; the eighth is not narrower than those on each side of it, but shorter, being about half the length of the ninth; the ninth and tenth are equal in length and thickness; the eleventh is larger than the tenth, and becomes acuminate towards the point. The head is darker than the rest of

* Leconte in *loc. cit.*

the body. The thorax forms a continuous or nearly continuous line with the elytra; its posterior angles do not project behind; both thorax and elytra are seen under a powerful lens to be very finely though distinctly transversely strigose. The elytra are not truncate, although they are rounded rather rapidly at the apex. The scutellum is not visible. The sutural stria is distinct at the base, but it draws closer to the suture as it proceeds to the apex, and is lost before it reaches it. Under side and legs ferruginous-brown.

From Caraccas. I received this species from M. Deyrolle, under the manuscript name of *æquinoctialis*; but the advantage of having a name bearing reference to some particular character, when that can be had, is so obvious, that I am sure that that excellent entomologist will excuse my not adopting the name he had destined for it.

63. *C. australis*, Erichs.

Catops australis, Erichson, Wiegm. Arch. (1842) p. 243.

Mesosterno carinato, niger, nigro-pubescens; thorace elytrisque transversim strigosis. Fig. 56.

Long. $1\frac{1}{3}$ lin.

Oval, lightly convex, black, with black pubescence. Antennæ of the length of the head and thorax, the apex slightly thickened, the eighth joint narrower than those next it, black, piceous at the base. Thorax about the same breadth as the elytra, with the sides lightly rounded, the posterior angles slightly projecting obliquely behind, nearly right-angled; the base subsinuate on each side, finely transversely strigose. Elytra transversely feebly strigose, the strigations rather widely separated, impressed with a sutural stria, rounded at the apex. Legs concolorous, tarsi piceous, the anterior lightly dilated at the base in the males. Mesosternum slightly keeled.

This species seems to come between *strigosus*, Kraatz, and *sericeus*.

It is found in Tasmania, and is the only species yet recorded from the southern part of the hemisphere.

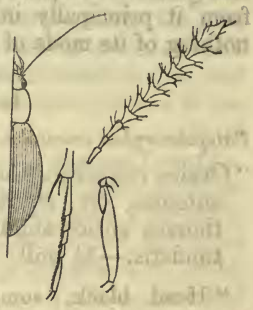
Genus Catoptrichus, mihi.

Antennæ of eleven joints, the last eight of which are strongly serrated in the males, somewhat less so in the females; the three first are slender; the eighth joint is very slightly, if at all, narrower or shorter than those on each side of it. In other respects the characters do not differ from those of *Catops*.

1. *C. Frankenhæuseri*, Mann.

Catops Frankenhæuseri, Mann. Bull. Soc. Imp. Mosc. 1852, pt. 2. p. 332.

Fig. 57.



Elongatus, fusco-piceus, griseo-pubescens; antennis pectinatis, basi ferrugineis, articulo ultimo pyriformi apice acuminato; thorace quadrato, angulis rotundatis, obsolete canaliculato, postice in medio impresso; elytris oblongo-ellipticis, subtilissime punctulatis, tenue striatis, stria suturali profundiore, rufo-testaceis, cinereo-holosericcis, pilis longis fuscis præsertim in margine obsitis; pedibus ferrugineo-piceis.

Long. $2\frac{1}{2}$–3 lin., lat. $1\frac{1}{4}$–$1\frac{1}{2}$ lin.

Elongate, having a good deal the form of the first group (subg. *Choleva*) of the genus *Catops*: fuscous, clothed with a griseous pubescence. Antennæ pectinated, black, ferruginous at the base; the first three joints slender; third longer than second; fourth to tenth each of nearly equal length, globose, with a long spine proceeding outwards. Thorax quadrate, angles rounded, obsoletely canaliculated, impressed behind in the middle. Elytra oblong-elliptic, very finely punctulated, feebly striated, the sutural stria deeper, rufo-testaceous, with a cinereous bloom and clothed with long brown hairs, especially on the margin; legs dark ferruginous.

Inhabits the island of Sitka. Several specimens were taken by M. Frankenhæuser in a human body lying in a wood, and in putrid fungi.

I owe the above figure to Dr. Leconte.

Genus Catopsimorphus, Aubé.

Catopsimorphus, Aubé, Ann. Soc. Ent. France, 2 sér. vol. viii. p. 324.

"Antennæ with eleven joints, very much flattened; the eighth not narrower and scarcely shorter than the seventh and ninth. Epistome cut almost straight. Labrum broadly and deeply emarginate, and provided in front with a small very slender membrane, strongly emarginate in the middle and ciliated in the emargination. Mandibles denticulated at the extremity and furnished within with a ciliated membrane. Maxillæ with the internal lobe terminated by a small hook; the external lobe obtuse and hairy at the extremity. Maxillary palpi with four joints, the first very small, the second slightly clavate, the third obconic, the last conical, a half smaller than the third. Labium

membranous, pretty deeply emarginate. Labial palpi with three cylindrical joints, the last smallest. Tarsi with five joints, the anterior and middle probably dilated in the male. The facies of this genus is completely analogous to that of *Catops*. It differs from it principally in the form of the antennæ. We know nothing of its mode of life*."

1. *C. orientalis*, Aubé.

Catopsimorphus orientalis, Aubé, Ann. Soc. Ent. Fr. 2 sér. viii. 325.

"Ovalis, convexiusculus, niger, griseo-pubescens; antennis, ore, elytris pedibusque ferrugineis; thorace antice angustato, angulis omnibus rotundatis.—3½ mill.

Fig. 58.

"Head black, somewhat brilliant, tolerably broad, very finely punctate and slightly pubescent. Labrum, palpi and antennæ testaceous; the latter with the first joint longish, cylindrical; the second almost globular; the remainder transverse, flattened and gradually increasing in size to the last, which terminates in a point; the eighth scarcely shorter than the seventh and ninth. Thorax black, pubescent and finely punctate and reticulated, more than one and a half times broader than long, much narrower in front than behind, cut almost straight at the apex and the base, very broadly rounded at the sides; the anterior and posterior angles obtuse and rounded. Elytra as broad as the thorax at the base, about one and a half times longer than broad; broadly rounded behind; ferruginous, less finely punctate and reticulated than the thorax; pubescent and marked with a deeply impressed stria on each side of the suture. Under side of body black, with the extremity of the abdomen somewhat ferruginous. Legs ferruginous; thighs slightly brown†."

Dr. Aubé mentions that he had two individuals of this species, both taken in the neighbourhood of Constantinople. He supposes them to be both females from their having all their tarsi simple.

Since the first part of this paper was in print, I have had an opportunity of carefully examining the specimens in the collection of the Count Dejean, now belonging to the Marquis de Laferté Senectère, who kindly placed them in my hands for that purpose; and it may be desirable that I should state the

* Aubé in *loc. cit.* † Aubé in *loc. cit.*

result of my examination in reference to the names used by Count Dejean and published in his Catalogue. The specimens are for the most part in good order and preservation. A few, however, were in a less satisfactory state, and of course I give my opinion of these with doubt. As might be expected in such a difficult genus, there were sometimes more than one species placed under the same name, so that it is a matter of opinion which was the typical species he intended to designate.

The names in the collection correspond with those published in the 3rd edition of his Catalogue, 1837. His

Catops rufescens = *C. angustatus*, Erichs.
—— *oblongus* = *cisteloides*, Frœhl. (*castaneus*, Sturm).
—— *ovatus*, Dej. = *agilis*, Erichs.
—— *major*, Dej. = *picipes* Erichs.
—— *Americanus* was in too bad a state to determine.
—— *morio* = *nigrita*, Erichs.

Under this name were found specimens of *nigrita*, *fuscus*, and *umbrinus*, but the preponderance in point of number was decidedly in favour of *nigrita*.

Catops tibialis, Dej. = *coracinus*?, Kelln.

This species and a portion of those standing under the next name, *fuscus*, but which were the same, were marked as coming from Portugal. I thought they came nearer to *coracinus* than any other, but am not satisfied that they were not perhaps an undescribed species.

Catops fuscus = *tristis*, Erichs.

I have no doubt that Dejean meant *tristis* to be the type of his *fuscus*. He had a number of *tristis*, and one of *grandicollis* under it, and none of these under any other name. At the same time he had among them several of the above Portuguese species, and some of *alpinus*, Gyll., as well as *Spencianus*, Kirby (*cadaverinus*, Mann.).

Catops chrysomeloides = *chrysomeloides*, Sp.
—— *australis* = *australis*, Erichs.
—— *agilis* = *fumatus*, Erichs.

Some of *C. alpinus*, Gyll., were mixed with *fumatus* under this name, but the great majority were the latter.

Catops truncatus = *sericeus*, Erichs.

A single *fumatus* and a single *velox* have found their way into the mass of *sericeus*, but this is obviously by inadvertence.

Catops transverso-striatus = a new species described by me under this name in the foregoing pages.

Catops pallidus=velox, Spence. Represented by a single bad specimen.

—— *luridus=scitulus*, Erichs.

The first specimens are *scitulus*, then follow some of *velox*, and lastly what may be *brunneus*, Sturm.

—— *flavescens=præcox*, Erichs.

—— *minutus=anisotomoides*, Spence.

The remainder of his species are different species of *Colon*, and do not fall within this Monograph.

On looking over the preceding parts of this paper, I am not satisfied with the figure given of *C. nigrita* (fig. 12), and would beg the reader instead of it to adopt the figure I now give, as a more accurate representation of the species.

A figure of *transverso-striatus* ♂ was omitted to be given with the text. It is now supplied.

C. nigrita.

C. transverso-striatus.

I have only now to add the Dichotomous Table of the European species which I promised at the commencement of this paper. It is not to be understood as a substitute for the descriptions, but merely as a slight aid in turning to the quarter where the species are likely to be found.

Dichotomous Table of Characters of European Species of Catops.

	Mesosternum simple	1
	Mesosternum keeled	30
1.	Antennæ nearly filiform and decidedly longer than thorax	2
	Antennæ more or less clavate, and not longer or very slightly longer than thorax	5
2.	Thorax broader towards base than in front	*agilis*.
	Thorax not broader towards base than in front	3
3.	Punctuation coarse, pubescence long and sparse, and elytra bellied out	*spadiceus*.
	Punctuation fine, pubescence dense and short, and elytra elongate and narrow	4

4. Margins of thorax paler than middle ..... *angustatus.*
   Margins of thorax not paler than middle ... *do.* var. *cisteloides.*

5. Base of thorax cut in, so as not to form a continuous outline with elytra 6
   Base of thorax forming a continuous outline with elytra or nearly so 19

6. Colour of pubescence grey and brown or dull yellow on thorax, yellowish hairs on base and margins of elytra wanting or scarcely perceptible, and either no bloom or grey bloom on elytra 7
   Colour of pubescence clear yellow on thorax, a brownish-blue or purplish bloom on the elytra, and yellowish hairs on base and sides of elytra... 14

7. Antennæ longish and subfiliform, not heavily clubbed 8
   Antennæ shorter and more clavate 12

8. Elytra transversely strigose .... *acicularis.*
   Elytra not transversely strigose 9

9. Antennæ with apex pale ..... *picipes.*
   Antennæ with apex not paler than rest 10

10. Posterior angles of thorax acuminate behind 11
    Posterior angles of thorax not acuminate behind... *fuscus*.*

11. Posterior angles much produced, antennæ wholly ferruginous ..... *meridionalis.*
    Posterior angles only slightly produced, antennæ more dusky towards apex ..... *nigricans.*

12. Antennæ very heavily clavate ..... *chrysomeloides.*
    Antennæ only moderately clavate 13

13. Insect thin and narrow ..... *morio.*
    Insect shorter and more compact ..... *coracinus.*

14. Antennæ comparatively long and subclavate ..... *nigrita.*
    Antennæ heavily clavate 15

15. Thorax deeply punctured ..... *neglectus.*
    Thorax more or less transversely granulose or wrinkled 16

16. Thorax nearly parallel on the sides ..... *quadraticollis.*
    Thorax not parallel on the sides 17

17. Thorax faintly transversely wrinkled 18
    Thorax granulose ..... *tristis*, var. *rotundicollis.*

18. Thorax short, transverse, and not broad; elytra usually very long ..... *tristis* (type).
    Thorax broad, elytra moderate in length ... *tristis*, var. *grandicollis.*

19. Middle tarsi widened in males 20
    Middle tarsi not widened in males 25

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* *Fuscus* is one of those species, which, from their transitional characters, nearly put dichotomy at defiance. It might almost be placed under No. 19 instead of No. 6, as the base of the thorax has only a slight interruption in its continuity; and again, its brown or purplish elytra are not unlikely to induce one to place it under No. 14 instead of No. 7.

20. { Antennæ heavily clavate 21
Antennæ subclavate 22

21. { Thorax not narrower at base than elytra ..... *fumatus*.
Thorax slightly narrower at base than elytra ..... *alpinus*.

22. { Thorax with posterior angles rounded ..... *brevicollis**.
Thorax with posterior angles not rounded 23

23. { Thorax with lateral margins reflexly sinuated ..... *depressus*†.
Thorax with lateral margins rounded 24

24. { Thorax with posterior angles projecting strongly backwards, forming an acute angle; elytra not distinguished by sericeous pubescence ..... *umbrinus*.
Thorax with posterior angles projecting slightly backwards, the angle not acute but right-angled; elytra distinguished by a silky pubescence which in different lights shows like a light band across them ..... *scitulus*.

25. { Thorax not wider at base than elytra 26
Thorax slightly wider at base than elytra ..... *præcox*.

26. { Elytra more than three times the length of thorax *transverso-striatus*.
Elytra not more than three times the length of thorax 27

27. { Basal margin of thorax sinuated ..... *velox*.
Basal margin of thorax straight 28

28. { Posterior angles of thorax right-angled ..... *badius*‡.
Posterior angles of thorax obtuse 29

29. { Insect roundish ..... *anisotomoides*.
Insect more elongate ..... *brunneus*‡.

30. { Body polished and shining ..... *lucidus*.
Body not polished 31

31. { Elytra not truncate 32
Elytra truncate 33

32. { Elytra acuminate ..... *strigosus*.
Elytra not acuminate ..... *Colon*.

33. { Antennæ with apical joint pale ..... *varicornis*.
Antennæ with apical joint not pale 34

34. { Antennæ heavily clubbed, with base not paler than rest ..... *validus*.
Antennæ moderately clubbed, and base paler than club ..... *sericeus*.

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* Not having seen this species, I only place it under No. 19 provisionally, the description given by M. Kraatz being scarcely sufficient to satisfy me as to its place.

† Not having seen the male of this species, it is only from supposition that I have placed it under No. 20.

‡ Not having seen *badius* nor *brunneus*, their place is marked provisionally and with hesitation.